Crop Monitoring Using UAV Multispectral Imagery on Different Rice Varieties

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The study investigated the use of precision agriculture tools to monitor different rice varieties using multispectral UAVs and evaluated the highest performance of rice varieties using vegetation indices analysis. The UAVs are equipped with a multispectral sensor that can capture images of the rice fields at various wavelengths of light. The data collected from the UAVs were analyzed using vegetation indices such as NDVI and NDRE representing the rice plants' health and growth. The vegetation indices then correlated with SPAD to find the relationship between aerial imagery and ground data. Six types of variety are used in this study IS21, MR315, MR297, PUTRA1, BC and JAVA. The result of this study showed that most of the variety which is IS21, MR315, PUTRA1 and MR297 find out that all of these varieties have a strong positive correlation between SPAD and NDRE/NDVI and also is consistent with their yield production. The highest performance of rice varieties based on the yield and vegetation indices value is the BC which is 85.13 tan/ha for yield production with a coefficient correlation is R = -0.8379 for SPAD and NDVI while SPAD and NDRE are R = -0.19026.

Keywords: rice mapping, unmanned aerial vehicle, normalized difference vegetation index

